

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. *(original)* A sensor card, comprising:
 - one or more sensors to respectively collect sensor data;
 - a memory;
 - sensor interface circuitry coupled to the one or more sensors to receive the sensor data and to store the sensor data in the memory; and
 - a digital interface configured for connection to a corresponding digital interface on a mobile communication device, to facilitate access to the memory by a host process operating on the mobile communication device when the sensor card is connected to the mobile communication device via the digital interface.
2. *(original)* The sensor card as in Claim 1, wherein the sensor interface circuitry further comprises a bridge coupled between the one or more sensors and an external memory also implementing the digital interface to facilitate mapping of the sensor data into a defined portion of the external memory, wherein the host process receives the sensor data via the defined portion of the external memory.
3. *(original)* The sensor card as in Claim 2, wherein the bridge comprises means for switching between the defined portion of the external memory and remaining portions of the external memory to allow the host process to access the sensor data and other non-sensor data respectively.
4. *(original)* The sensor card as in Claim 1, further comprising a housing to house the sensor card when the sensor card is not connected to the mobile communication device, wherein the housing comprises a power source to provide power to the sensor card to allow the sensor data to be stored in the memory when the sensor card is housed within the housing.

5. *(original)* The sensor card as in Claim 1, further comprising a substrate housing the one or more sensor elements, the memory, and the sensor interface circuitry.

6. *(original)* The sensor card as in Claim 5, further comprising a housing to encapsulate the substrate.

7. *(original)* The sensor card as in Claim 1, wherein the sensor interface circuitry comprises a memory controller coupled to the digital interface, wherein the memory controller is configured to enable access to the memory by both the sensor interface circuitry and the host process.

8. *(original)* The sensor card as in Claim 7, wherein the memory controller comprises a direct memory access (DMA) controller to facilitate DMA transfers from the sensor interface circuitry to the memory.

9. *(original)* The sensor card as in Claim 1, wherein the digital interface comprises a short range wireless interface for wirelessly coupling the memory and sensor data to the host process operating on the mobile communication device.

10. *(original)* The sensor card as in Claim 9, wherein the short range wireless interface comprises any of a Bluetooth interface and an infrared (IR) interface.

11. *(original)* The sensor card as in Claim 9, wherein the short range wireless interface is further wirelessly coupled to one or more radio frequency (RF)-enabled sensor devices to receive respective sensor data from the RF-enabled sensor devices.

12. *(original)* The sensor card as in Claim 1, wherein the digital interface comprises at least one of a serial interface, an MMC interface, a Serial Peripheral Interface (SPI), RS-232 interface, I²C interface, and Universal Serial Bus (USB) interface.

13. *(original)* The sensor card as in Claim 1, wherein the sensor interface circuitry comprises means for conditioning the sensor data for storing in the memory.

14. *(original)* The sensor card as in Claim 1, wherein the sensor interface circuitry comprises an interface module coupled to the one or more sensors to receive analog sensor data and to provide digital representations of the analog sensor data.

15. *(original)* The sensor card as in Claim 1, wherein the memory comprises non-volatile memory.

16. *(original)* A method for incorporating sensor functionality into mobile communication devices having a host process and employing at least one removable memory card, comprising:

facilitating access to the removable memory card by the host process using a digital interface;

storing sensor data from one or more sensor modules into a memory;

coupling the host process of the mobile communication device to the memory via the digital interface which is used by the host process to access the removable memory card; and

accessing the sensor data from the memory by the host process via the digital interface.

17. *(original)* The method of Claim 16, wherein storing sensor data comprises storing sensor data into at least a first portion of the memory, and wherein accessing the sensor data from the memory comprises accessing the sensor data from at least the first portion of the memory.

18. *(original)* The method of Claim 16, wherein storing sensor data comprises mapping sensor data from the memory into a defined portion of the removable memory card, and wherein accessing the sensor data from the memory by the host process comprises accessing the sensor data from the defined portion of the removable memory card.

19. *(original)* The method of Claim 18, wherein mapping sensor data from the memory into a defined portion of the removable memory card comprises enabling a bridge

to deliver the sensor data from sensor registers to the defined portion of the removable memory card.

20. *(original)* The method of Claim 19, wherein accessing the sensor data from the memory comprises enabling the bridge to deliver the sensor data from the defined portion of the removable memory card to the host process.

21. *(original)* The method of Claim 19, further comprising disabling the bridge to facilitate non-sensor-related memory transactions with the removable memory card from address locations not within the defined portion of the removable memory card.

22. *(original)* The method of Claim 16, further comprising removably coupling the one or more sensor modules and the memory to the mobile communication device.

23. *(original)* The method of Claim 22, wherein removably coupling the one or more sensor modules and the memory to the mobile communication device comprises connecting the one or more sensor modules and the memory to one or more connector slots on the mobile communication device.

24. *(original)* The method of Claim 16, further comprising disconnecting the host process of the mobile communication device from the memory, and storing the sensor data from the one or more sensor modules into the memory when the one or more sensor modules and the memory are disconnected from the host process of the mobile communication device.

25. *(original)* The method of Claim 16, wherein storing sensor data from one or more sensor modules into the memory comprises storing at least some of the sensor data from one or more sensor modules into the memory before coupling the host process of the mobile communication device to the memory.

26. *(original)* The method of Claim 16, wherein storing sensor data from one or more sensor modules into the memory comprises storing at least some of the sensor data from one or more sensor modules into the memory after coupling the host process of the mobile communication device to the memory.

27. *(original)* The method of Claim 16, wherein the removable memory card comprises a MultiMedia card (MMC), and wherein the digital interface comprises an MMC interface.

28. *(original)* The method of Claim 16, wherein the digital interface comprises any of an MMC interface, Serial Peripheral Interface (SPI), RS-232 interface, I²C interface, and Universal Serial Bus (USB) interface.

29. *(original)* The method of Claim 16, wherein storing sensor data from one or more sensor modules into a memory comprises performing direct memory access (DMA) transfers of the sensor data to the memory.

30. *(original)* A system for providing sensor functionality to mobile devices capable of communicating over a mobile communications network, the system comprising:

- modular sensor functionality comprising one or more sensors for gathering sensor data and a sensor memory to store the sensor data;
- a modular memory;
- a mobile communication device comprising a master process for controlling communication between the master process and one or both of the modular sensor functionality and the module memory; and
- a digital interface for facilitating communication over a bus between the master process and the modular sensor functionality, and between the master process and the modular memory.

31. *(original)* The system as in Claim 30, wherein the mobile communication device comprises a processor for executing the master process, and wherein the processor

executing the master process is configured to access the sensor data from the sensor memory via the digital interface.

32. *(original)* The system as in Claim 30, wherein the mobile communication device comprises a processor for executing the master process, and wherein the processor executing the master process is configured to access the modular memory via the digital interface.

33. *(original)* The system as in Claim 30, wherein the modular sensor functionality comprises a sensor interface coupled to the one or more sensors and to the modular memory to facilitate storing of the sensor data in the modular memory via the digital interface.

34. *(original)* The system as in Claim 33, wherein the mobile communication device comprises a processor for executing the master process, and wherein the processor executing the master process is configured to access the sensor data from the modular memory via the digital interface.

35. *(original)* The system as in Claim 34, further comprising a bridge coupled between the processor for executing the master process and the modular memory to manage memory accesses to and from the module memory by the master process and the modular sensor functionality.

36. *(currently amended)* The system as in Claim 30, wherein the master~~host~~ process is detached from the sensor functionality, and wherein the modular sensor functionality operates in a stand-alone mode to write the sensor data to the modular memory for subsequent retrieval by the mobile communication device when the mobile communication device is re-attached to the sensor functionality.

37. *(original)* The system as in Claim 30, wherein the digital interface comprises a MultiMedia Card (MMC) interface, and wherein the modular memory comprises an MMC-compliant memory card.

38. *(original)* The system as in Claim 30, wherein the host process comprises a mobile phone engine operable to control communications over a cellular network.

39. *(original)* A mobile device having a scalable sensor system and capable of communicating wirelessly over a mobile communications network, the mobile device comprising:

- a processor configured to execute a host process;
- at least one modular card having sensor functionality implemented thereon to gather sensor data;
- one or more slots for receiving the modular cards; and
- a scalable digital interface to couple the sensor functionality of the modular cards to the host process operating on the mobile device.

40. *(original)* The mobile device as in Claim 39, further comprising a memory coupled to the scalable digital interface, and wherein the modular card having sensor functionality implemented thereon further comprises a bridge coupled between the sensor functionality and the memory to facilitate mapping of the sensor data into a defined portion of the memory, wherein the host process receives the sensor data via the defined portion of the memory.

41. *(original)* The mobile device as in Claim 39, wherein mobile device comprises a mobile phone or a personal digital assistant (PDA).